



Information about the subject

Degree: Bachelor of Science Degree in Veterinary Medicine

Faculty: Faculty of Veterinary Medicine and Experimental Sciences

Code: 1261106 **Name:** Animal and Plant Biology

Credits: 6,00 **ECTS Year:** 1 **Semester:** 1

Module: Module of Common Basic Training

Subject Matter: Biology **Type:** Basic Formation

Field of knowledge: Science

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:



Module organization

Module of Common Basic Training

Subject Matter	ECTS	Subject	ECTS	Year/semester
Statistics	6,00	Biometrics and Statistics	6,00	1/1
Biology	6,00	Animal and Plant Biology	6,00	1/1
Biochemistry	6,00	Biochemistry	6,00	1/2
Animal Anatomy	18,00	Animal Anatomy I and Embryology	6,00	1/1
		Animal Anatomy II	6,00	1/2
		Animal Cytology and Histology	6,00	1/2
Animal Physiology	12,00	Animal Physiology I	6,00	2/1
		Animal Physiology II and Immunology	6,00	2/2
Genetics	6,00	Genetics	6,00	1/2
Animal Domestication	6,00	Animal Domestication (Ethnology, Ethology and Animal Welfare)	6,00	1/2
Biological Agents of Interest in Veterinary Medicine	12,00	Veterinary Microbiology	6,00	2/2
		Veterinary Parasitology	6,00	2/1
Veterinary Medicine and Society	6,00	Veterinary Regulations and Legislation, Social Morality and Professional Deontology	6,00	5/1



Physics and Chemistry	6,00	Physico-chemical fundamentals of veterinary medicine	6,00	1/1
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Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 The student distinguishes the different levels of organization of living beings.
- R2 The student knows the classification criteria and international codes of biological nomenclature.
- R3 The student knows how to use different working techniques in the laboratory.
- R4 The student knows the general, structural and biological characteristics of the main groups of animal and plant organisms of veterinary interest.
- R5 The student is able to write a comprehensible and organized text on various zoological and botanical aspects in the veterinary field.
- R6 The student is able to write a comprehensible and organized text on various zoological and botanical aspects in the veterinary field.
- R7 The student looks for bibliographic information from different sources and knows how to analyse it with a critical and constructive spirit.
- R8 The student is able to produce documents on animal and plant biology, working as a team.
- R9 The student argues according to rational criteria based on his or her work.



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC	Weighting			
	1	2	3	4
CB1				X
Students must show that they have and understand knowledge in a field of study that is based on general secondary education on a level that, although supported by advanced text books, includes also some aspects that involve knowledge belonging to the vanguard of their field of study.				

SPECIFIC	Weighting			
	1	2	3	4
E3			X	
Understanding and applying principles and bases of plant and animal morphology, bionomics and systematics related to the veterinary field.				

TRANSVERSAL	Weighting			
	1	2	3	4
T1				X
Capacity of analysis, synthesis, implementation of knowledge for problem-solving and decision-making.				
T4			X	
Mastering fluency in oral and written mother tongue communication, listening and responding effectively using a language appropriate to audience and context.				
T6			X	
Using information technology to communicate, share, search for, collect, analyze and manage information, especially related to the veterinarian practice.				
T8			X	
Efficient and effective work, both independently and as a member of a multidisciplinary team or unit, showing respect, appreciation and sensitivity to the work of others.				



T10 Ability to learn, to research, and to be aware of the need to keep knowledge updated, and attending training programs.

x



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R4, R5, R6, R7, R8, R9	60,00%	Written assessment of acquired knowledge and skills. The test may consist of a series of open-ended questions or multiple-choice questions about the theoretical contents of the module and/or practical exercises (problem-solving).
R1, R3, R5, R9	5,00%	Evaluation of the use of the practical lessons in the classroom, of problems or computer science, seminars and tutorials, by means of participation, computer-supported problem solving and the elaboration of the corresponding reports.
R3, R4, R8	20,00%	Evaluation of the practical laboratory work, which must demonstrate the competences acquired by the student and his or her ability to use them to solve the different situations and problems that arise in a laboratory; this assessment may consist of one of the following methods, or a combination of several of them: an individual written test, the individual or group performance of a laboratory experience, the delivery of an individual or group report on the work carried out in the laboratory.
R5, R6, R7, R8	10,00%	Evaluation of group work through a system of continuous assessment throughout the course based on the delivery of assignments the objectives and content of which will be proposed by the teacher.
R1, R5, R6, R7	5,00%	Evaluation of activities in which the student must do some research individually and structure information related to each of the topics through a system of continuous assessment throughout the course based on the delivery of papers, the objectives and contents of which will be proposed by the teacher.



Observations

- **The written test represents 70% of the final grade. The student must obtain a minimum score of 5 in each one of the tests to pass the subject.** Failure to obtain this score of 5 on both tests, the rating of the approved test will be saved during the two sessions the following year.
- **Attendance at practices is mandatory**, so unjustified absence to all practices of the subject will be a discount of 50% of the final practice score.
- During the practical sessions the teacher will take control of the attendance and the attitude of each student. Factors such as attention, degree of participation and interest shown during practice will be taken into account. **The assessment of practical activities constitutes 15% of the final mark**
- **The submission and evaluation of targeted work contributes 15% of the final grade.**
- In all written evaluations carried out on the subject will take into account **the spelling**, so that for every misspellings (including accents) 0.1 points of the final grade will be deducted to a maximum of 2 points.
- Those students who, for various reasons (see Article 10 of current regulations <https://www.ucv.es/documentos/normativa/documento11.html>), do not attend the assessment of the subject on the official examination date, may be subject to the final assessment of the subject through an oral or written examination according to the criteria of the teacher.
- **Review examinations** after the appearance of the notes, the student will have times published on the platform, to review its examination, unless specifically instructed otherwise by the faculty and outside these hours no exams are displayed.

MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:



- M1 On-site training activity aimed primarily at acquiring knowledge acquisition skills. It is characterised by the fact that students are spoken to. Also called master class or exposition, it refers to the oral presentation made by the teacher, (with the support of blackboard, a computer and a projector for the display of texts, graphs, etc.), in front of a group of students. They are expository, explanatory or demonstrative sessions of contents. The size of the group is determined by the limit or physical capacity of the classroom; therefore, it is a single group.
- M2 On-site training activity aimed primarily at obtaining knowledge application and research skills. Knowledge is built through interaction and activities. The activity consists of supervised monographic sessions with shared participation (teachers, students, experts). The size of the group is variable, from one large group to various small groups, with a minimum of 6 students to ensure interaction. The evaluation will be based on follow-up records kept by the teacher. Participation and the development of the capacity to problematize should be taken into account.
- M4 On-site training activity in groups that takes place in the classroom. It includes working with documents and formulating ideas without handling animals, organs, objects, products, or corpses (e.g., work with articles or documents, clinical case studies, diagnostic analyses, etc.). It would correspond to "Animal-free supervised practical work", type e1, from the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.
- M5 On-site training activity in groups that takes place in the Computer Lab where the computer is used as support for learning. It includes work with computer models, specific software, Web queries, etc. It would correspond to "Animal-free supervised practical work", type e1, from the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.
- M6 On-site training activity in groups carried out in the laboratory. It includes the sessions where the students develop laboratory experiments, make dissections or use the microscopes for the study of histological or histopathological samples actively and autonomously, under the supervision of the professor. It also includes work with healthy animals, objects, products, corpses (e.g., animal handling, bacteriological practices, physiology or biochemistry, meat inspection, etc.). It would correspond to the "Supervised practical non-clinical animal work" type e2 of the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.
- M8 A set of on-site training activities carried out by the teacher to provide personalised attention to the student or in small groups with the aim of reviewing and discussing the materials and topics presented in classes, seminars, readings, carrying out projects, etc. The aim is to ensure a truly comprehensive education of the student rather than a mere transfer of information. It is, therefore, a personalized assistance relationship in which the tutor assists, facilitates and guides one or more students in the learning process.



- M9 Set of processes that attempt to evaluate the learning outcomes of students expressed in terms of acquired knowledge, capacities, skills or abilities developed and manifested attitudes. It covers a wide range of activities that can be developed for students to demonstrate their training (e.g. written, oral and practical tests, projects or assignments). It also includes the Official Calls.
- M10 Autonomous training activity, including activities and coursework, bibliographic searches. The results obtained from unsupervised group and teamwork will be evaluated, with particular attention paid at the time of evaluation to the acquisition of specific knowledge development skills through group work.
- M11 Autonomous training activities related to personal study, or the preparation of individual course assignments. The individual preparation of readings, essays, problem solving, papers, reports, etc. will be evaluated through presentations or submissions during theoretical classes, practical classes, seminars and/or tutorials. The evaluation of the submitted papers will consider the structure of the paper, the quality of the documentation, originality, spelling and presentation.



IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons (TL) M1	R1, R2, R4, R6, R9	42,00	1,68
In-Classroom Practice (ICP) M4	R2, R5, R6, R7, R8	2,00	0,08
Laboratory Practice (LP) M6	R1, R2, R3, R5	10,00	0,40
Tutorial M8	R9	4,00	0,16
Evaluation (Ev) M9	R1, R2, R3, R4, R5, R6, R7, R8, R9	2,00	0,08
TOTAL		60,00	2,40

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M10	R5, R6, R7, R8, R9	30,00	1,20
Individual work M11		60,00	2,40
TOTAL		90,00	3,60



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
DIDACTIC UNIT 1.- BIODIVERSITY AND TAXONOMY	ITEM 1. Introduction to biological diversity: Origin and evolution of biological diversity. Taxonomy and biological nomenclature.
DIDACTIC UNIT 2.- ORGANIZATION LEVELS	ITEM 2. Viruses. Main characters. ITEM 3. Prokaryotes: main characters and groups within veterinary interest. ITEM 4. Eukaryote domain. Eukaryote cell. Cellular organization levels. Differences between animal and plant cell. ITEM 5. Protistes: protozoa and unicellular algae. Characters and groups within veterinary interest.
DIDACTIC UNIT 3. - ZOOLOGY.	ITEM 6. Animal concept definition. Reproduction types. Embryology. Egg types and segmentation. Blastula. Gastrula. Celome. General classification for animal kingdom. Protostomate (acelomics, pseudocelomics and eucelomics). Deuterostomate. ITEM 7. Non arthropod Invertebrates. Main characters and veterinary interest. ITEM 8. Arthropod Invertebrates. Main characters and veterinary interest. ITEM 9. Chordates I: fish, amphibians and reptiles. Main characters. ITEM 10. Chordates II: birds and mammalians. Main characters.
DIDACTIC UNIT 4.- BOTANY	ITEM 11. Main characters of plants and veterinary interest. Classification and structure in plants. Morphology and physiological process in plants: leaf, stem and root. Plant reproduction: flowers, fruits and seeds.



DIDACTIC UNIT 5.- FUNGUS

ITEM 12. Fungus: Basic characteristics and systematic.
Main groups within veterinary interest.

DIDACTIC UNIT 6.- ECOLOGY

ITEM 13. Ecology. Principles. Living organism interactions
in veterinary field.

Organization of the practical activities:

	Content	Place	Hours
PR1.	UD 1. Biodiversity and Taxonomy. Biodiversity workshop: management and study of living representatives of various animal groups.	Laboratory	2,00
PR2.	UD2. Levels of organization: Management and use of the microscope and various microscopic techniques (in vivo observation; permanent; fixation and staining) for the observation of prokaryotic organisms, unicellular eukaryotes and metazoans.	Laboratory	4,00
PR3.	UD3. Zoology: Study of external and internal anatomy of a fish.	Laboratory	4,00
PR4.	UD4. Zoology: Study of dissection of digestive and respiratory tract of a bird.	Lecture room	2,00
PR5.	UD5. Botany: Visual recognition of seeds, grains, cereals and legumes, roots and tubers used in the production of feed for animal feed.	Lecture room	2,00



Temporary organization of learning:

Block of content	Number of sessions	Hours
DIDACTIC UNIT 1.- BIODIVERSITY AND TAXONOMY	6,00	12,00
DIDACTIC UNIT 2.- ORGANIZATION LEVELS	6,00	12,00
DIDACTIC UNIT 3. - ZOOLOGY.	14,00	28,00
DIDACTIC UNIT 4.- BOTANY	2,00	4,00
DIDACTIC UNIT 5.- FUNGUS	1,00	2,00
DIDACTIC UNIT 6.- ECOLOGY	1,00	2,00



References

BASIC BIBLIOGRAPHY

- CAMPBELL, N.A. & REECE, J.B. (2015). *Biology: a global approach*. Pearson Education
- CURTIS, H. & BARNES, N.S. (2006). *Invitación a la biología*, 6ª edición, Ed. Panamericana
- FREEMAN, S., QUILLIN, K. & ALLISON, L. (2014). *Biological Science, Fifth Edition*. Ed. Pearson Education
- HICKMAN, C.P., ROBERTS, L.S. & LARSON A. (2003). *Zoología. Principios Integrales*. Interamericana. 10/E. McGraw-Hill.

FURTHER READING

- AGUILAR, A., E. DE JUANA & A. MORALES. (1981). *Zoología de Vertebrados*. Ed. Carroggio.
- ALEXANDER, R. (1990). *Animals*. Ed. Cambridge University Press.
- ALBERTS, B., JOHNSON, A., LEWIS, J., MORGAN, D., RAFF, M., ROBERTS, K. & WALTER, P. (2014). *Molecular Biology of the Cell*, 6ª edición, Ed. Garland Science, New York.
- AUDESIRK, T. & AUDESIRK, G. (2003). *Biología: la vida en la tierra*, 6ª edición Ed. Prentice Hall.
- BARNES, R.D. (1977). *Zoología de Invertebrados*. Ed. Interamericana.
- BARNES, R.S.K., CALOW, P. & OLIVE, P.J.W. (1993). *The Invertebrates a new synthesis*. Blackwell Scientific Publications.
- BAUCHOT, M. L., PRAS, A. (1982). *Guía de los peces de mar de España y de Europa*. Barcelona. Omega.
- BRUSCA, R.C. & G.I. BRUSCA. (1990). *Invertebrates*. Sinauer Associates Inc.
- CONNOR, R.C., PETERSON, D.M. (1994). *The lives of whales and dolphins*. New York. Henry Holt Co.
- CURTIS, H. & BARNES, N.S. (2001). *Biología*, Ed. Panamericana 6ª ed.
- CAMPBELL, N.A. (2007). *Biología*, 7ª edición, Ed. Benjamín Cummings Publishing Co. Inc..
- CAMPBELL, N.A., MITCHELL, L.G. & REECE, J.B. (2003). *Biology: concepts and connections*. 4ª edición. Ed. Benjamin Cummings Publishing Company Inc.
- FONT QUER, P. (2000). *Diccionario de Botánica*. Ed. Península.
- GRASSE, P.P. (1976). *Zoología. Tomo 1. Invertebrados*. Ed. Toray Masson.
- GRASSE, P.P. (1977). *Vertebrados. Tomo 2. Anatomía comparada*. Ed. Toray Masson.
- GRASSE, P.P. (1978). *Vertebrados. Tomo 3. Agnados, peces, anfibios y reptiles*. Ed. Toray Masson.
- GRASSE, P.P. (1980). *Vertebrados. Tomo 4. Aves y Mamíferos*. Ed. Toray Masson.
- HAISTON, N.G. (1994). *Vertebrate Zoology an experimental field approach*. Cambridge University Press.
- IZCO, J. & et al., (2004). *Botánica*. 2ª ed. McGraw-Hill-Interamericana. Madrid
- LINDNER, G. (1977). *Moluscos y caracoles de los mares del mundo*. Barcelona. Ed. Omega.
- MARGULIS L. & K. SCHWARTZ. (1985). *Cinco Reinos. Guía Ilustrada de los phyla de la vida en la Tierra*. Ed. Labor.
- MEGLITSH, P. A. (1978). *Zoología de Invertebrados*. Ed. Blume.
- RUPPERT, E.E. Y BARNES R.D. 1996. *Zoología de los Invertebrados (6ª Edición)*. McGraw-Hill



Interamericana Editores.

SOLOMON, E. P., BERG, L.R., MARTIN, D.W. & GARCÍA HERNÁNDEZ A. E.

(2013) Biología, México, Ed. McGraw-Hill Interamericana.

STARR, C. & TAGGART, R. (1995), Biology. The unity and diversity of life. 7^a edition. Ed.

Wadsworth Publishing Company.

STROCH, V. & WELSCH, U. (2001). Curso Práctico de Zoología de Kükenthal. Barcelona. Ariel.

WALLACE, R.A., SANDERS, G.P. & FERL, R. (1996). Biology: science of life, 4^a edition Ed.

Harper Collins.

STRASBURGER, E. (2003). Tratado de Botánica. Ed. Omega.

VILLEE, C.A., WALKER, W.F. & BARNES, R.D. (1987). Zoología. México. D.F. Ed.

Interamericana.

WEISZ, P.B. (1985). La ciencia de la Zoología. Ed. Omega.



Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

Microsoft Teams

Kaltura



Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

Microsoft Teams

Kaltura

Explanation about the practical sessions:

The practical sessions will be carried out through online teaching. They will be taught through sessions in which the teacher will explain the laboratory practices using Power-point presentations and explanatory videos. In addition, the students have experimental protocols and a booklet for each of the practices to be developed. Practice scripts include questions to be worked on and corrected during virtual classroom sessions



2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

- The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.
- The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: